

TAENIOPTERYX BURKSI (PLECOPTERA: TAENIOPTERYGIDAE) IN COLORADO, WITH NOTES ON AQUATIC INSECTS OF PLAINS STREAMS¹

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ABSTRACT: The winter stonefly, *Taeniopteryx burksi* is recorded for the first time from Colorado. This is only the third species of this predominantly eastern group to be found in the western United States. The remarkable streams of the Great Plains of eastern Colorado have an interesting mix of widespread-eastern, midwestern and western species of aquatic insects. The dominant species of these streams are listed.

Twelve species of *Taeniopteryx* are known from North America (Ricker and Ross 1968; Stewart and Szczytko 1974; Kondratieff and Kirchner 1982, 1984; Baumann and Jacobi 1984). Of these species, only three are known to occur in western North America [according to Baumann's (1976) zoogeographical divisions]: *T. nivalis* (Fitch) from Alberta, California, Oregon, Idaho, Saskatchewan, Utah and Washington, *T. parvula* Banks from Alberta, and *T. pecos* Baumann and Jacobi from New Mexico. Canton et al. (1981) also reported on two collections of nymphs of an unidentified species of *Taeniopteryx* from northern Colorado. These records may pertain to *T. nivalis*.

During a survey of the aquatic insects of eastern Colorado, numbers of mature nymphs and adults of *T. burksi* Ricker and Ross were collected from several streams in Yuma and Kit Carson Counties (Fig. 1). This area, part of the Great Plains physiographic province of Colorado, remains virtually uninvestigated by aquatic entomologists. The streams follow rather straight courses to the east and are characterized by low gradients, sandy bottoms and few instream retention devices (Fig. 2). The woody riparian vegetation of this region consists primarily of occasional Plains Cottonwood trees (*Populus sargentii*). Unfortunately, many of the streams are being seriously perturbed by agricultural practices.

Taeniopteryx burksi is widely distributed throughout eastern North America (Ricker and Ross 1968). Stewart et al. (1974) presented several hypotheses concerning the western dispersal and distribution of *Taeniopteryx* species and other stoneflies during the glacial periods. These remarkable spring-fed streams on the Great Plains of eastern Colorado may be the most western refugia for this species and other typically eastern North American

¹Received July 29, 1986. Accepted October 1, 1986.

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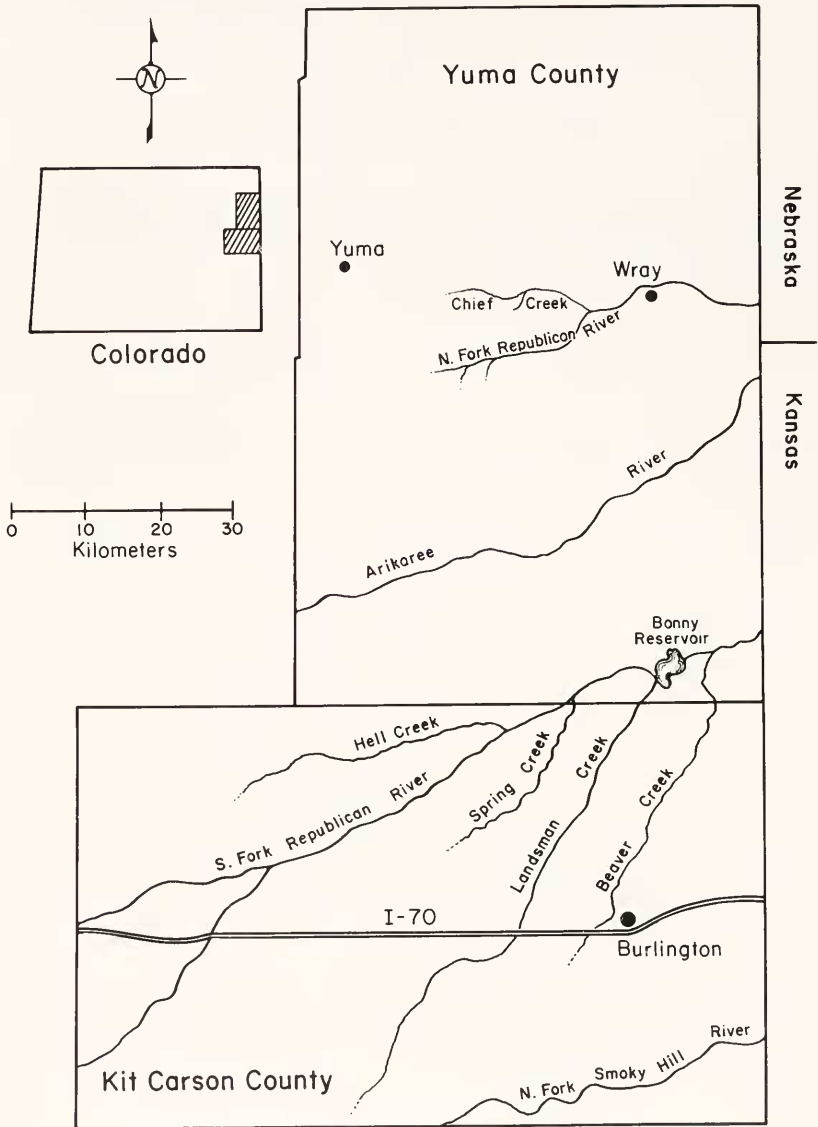


Fig. 1. Collecting sites in Yuma and Kit Carson Counties, Colorado.



Fig. 2. Photograph showing typical plains stream habitat.

groups of aquatic insects. Other examples of predominantly eastern stoneflies found in the West include *Acroneuria abnormis* (Newman), *Parcapnia angulata* Hanson, *Pteronarcys dorsata* (Say), and *Perlesta*. All of these taxa now have been collected in Colorado.

No capniids or other taeniopterygids were found in association with *T. burksi*. The only other stoneflies present in these streams were a species of *Isoperla* (*quinquepunctata* complex of Szczytko and Stewart 1979) and a species of the *Perlesta placida* complex (genus being revised by B.P. Stark).

Other adult and immature aquatic insects collected during preliminary sampling include the dragonflies and damselflies, *Ophiogomphus severus* Hagen, *Calopteryx maculata* (Beauvois), and *Hetaerina americana* (F.); mayflies, *Isonychia rufa* McDunnough, *Baetis insignificans* McDunnough, *Heptagenia diabasia* Burks, *Ephemerella inermis* Eaton, *Hexagenia limbata* Serville, and *Tricorythodes* sp.; the caddisflies *Hydropsyche occidentalis* Banks, *Cheumatopsyche pettiti* (Banks), *Nectopsyche diarina* Ross and *Gumaga griseola* (McLachlan); and the riffle beetles *Stenelmis crenata* (Say) *Microcylloepus pusillus* (LeConte), and *Dubiraphia* spp. The water penny genus *Psephenus* has also been collected from this area (D. Fronk, personal communication). The above faunal assemblage is an interesting mix of widespread-eastern, midwestern, and western species.

Perlesta (Stark *et al.* 1973), *I. rufa* (Kondratieff and Voshell 1984), *H. diabasia*, *G. griseola* (Ross and Wallace 1974; D. Rüter personal communication), *S. crenata*, *M. pusillus*, and *Psephenus* (Brown 1983) also represent new state records for Colorado.

Selected Material Examined: *T. burksi* - Yuma Co., Chief Creek, 31 Jan. 1986, 15 males, 11 females, 1 nymph; North Fork of Republican River, 31 January 1986, 18 males, 17 females, 20 nymphs; Kit Carson County, South Fork Republican River, 31 January 1986, 2 nymphs. *Perlesta placida* - Chief Creek, 25 June 1986, 5 males, 9 females, 7 nymphs; North Fork Republican River, 25 June 1986, 4 females. *I. rufa* - Chief Creek, 25 June 1986, 3 males, 7 females, 4 nymphs; Arikaree River, 25 June 1986, 1 male, 2 females, 1 nymph; Kit Carson County, South Fork Republican River, 25 June 1986, 1 male. *H. diabasia* - Chief Creek, 25 June 1986, 12 males, 15 females, 8 nymphs. *G. griseola* - Chief Creek, 25 June 1986, 3 males; *S. crenata* - Yuma County, North Fork Republican River, 25 June 1986, 4 adults. *M. pusillus* - North Fork Republican River, 25 June 1986, 2 adults. (All material deposited in the Colorado State University Insect Collection.)

ACKNOWLEDGMENTS

We thank Howard E. Evans and Don W. Fronk for their prepublication reviews, and Oliver S. Flint, Jr. for the identification of *Gumaga griseola*. Harley P. Brown confirmed our riffle beetle records.

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